Brief Plan on Hcal production

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PHENIX

Plan on next generation HCal production

- sPHENIX environment development
  - First production with new sPHENIX environment
  - Action Item [Mike]: Finishing implementing the Jet algorithm
    Good progress since last meeting
  - Action Item [Chris and Liang]: test run the production
- Details refining in the simulation
  - Action Item [Chris]: adjust scintillator width in PHG4HcalSubsystem to tune and match the volume percentage for absorber.
  - Action Item [Jin]: Birk's law by default.
    Need to restructure G4Hit a bit..
  - Action Item [Jin]: Magnetic field conversion for Hcal from 2-D mapping to scintillator/iron plate alternating map
  - Action Item [?]: Position dependent photon collection efficiency

Production data sets

- Base setup
  - Full magnetic field
  - QGSP_BERT_HP physics list
  - Either 1D tapered EMCal or 2D tapered EMCal (if we can get engineering drawing)
- Tilt angle scan:
  Combination of the following sets
  - 1) different tilt angle as in Liang's slides
    - Detector configuration: Inner HCal 32; Outer HCal 0, 4, 8, 12, 16
    - Detector configuration: Outer HCal 12; Inner HCal 0, 8, 16, 24, 32;
    - Reference: Inner HCal 0, Outer HCal 0
  - 2) pi+ and pi- single particle simulation + jet simulation based on pythia jets
- Scintillator response function study
  - pi+ and pi- single particle simulation + jet simulation based on pythia jets

More down-the-road wish list

- Wish Item: Standardized HCal response and jet response plots, automatically simulated after nightly-built or code changes